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ABSTRACT

It was hypothesized that there would be a measurable difference in grades received by students who maintain a record of regular attendance and by students who do not, and that the difference can be measured by the chi-square statistical technique. The attendance and evaluation records of a sample of Polk Community College history professors (320 students) were obtained and examined for the fall term of 1972-73 academic year. Using the chi-square statistical technique, analysis of the data collected showed that about one-third of the total number of students in the study took liberties beyond the normally accepted three-cut allowance. Of these, one-fifth failed. The data also indicated that overall end-of-course grades would be higher if regular attendance in class were maintained by all students. (DB)

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AN ANALYSIS OF ACADEMIC ACHIEVEMENT AND CLASSROOM ATTENDANCE

by

Hershel H. Nelson

Polk Community College
Winter Haven, Florida

A PRACTICUM PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF EDUCATION

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TITLE

An analysis of the relationship between classroom attendance in history classes and grades received for academic achievement in history classes at Polk Community College.

STATEMENT OF THE PROBLEM

Do students who fail to maintain a record of reguiar attendance in Polk Community College history classes receive lower end of course grades than those who maintain a record of regular attendance?

SCOPE AND LIMITATIONS OF THE STUDY

1. The sampling technique employed in this study would not render identical results if employed on a larger scale.

2. Some Polk Community College history students enter the course with a well founded background in factual information from previous instruction, and they more easily grasp complex concepts developed late in the course. These students can afford more absences than those who do not have this background. They are few in number, however, and although they reduce the validity of this study to a degree, they do not render it useless.

3. Since end of course grades normally involve a degree of professor judgement related to individual philosophy, the results of additional studies involving different professors may vary from this study.

BACKGROUND AND SIGNIFICANCE OF THE STUDY

There has been no formal study of the relationship between class attendance and student performance at Polk Community College. The administrative policy in regard to classroom attendance was formulated as a result of the recommendations of the Faculty Handbook Committee. It is the philosophy of the college that attendance in class is an essential part of all courses; thus, the policy is that no absences are outright sanctioned. As a general rule a professor may drop a student from his class for excessive absences if the number of absences exceeds the number of times per week that the class meets. That is, a three semester hour course may tolerate as many as three absences. In all cases, individual professors judge the merits of excuses and permit or deny further absences. Because some professors are more lenient than others, students tend to take liberties beyond the generally recognized three-cut allowance. Students quickly learn from their fellow student in which courses it is safe to take liberties without being dropped from the course. Because this kind of student communication is so reliable, the official handbook policy becomes meaningless, if not subordinate to grapevine information. Over a period of time and through practices of excusing absences beyond those described in the policy handbook, absences at the discretion of the student rather than the professor tend to set the norm. Under such circumstances the student and professor often expect performance and achievement based upon two different sets of standards.

In the closing days of each semester students approach professors and request extra credit work in an effort to elevate

their academic average to a passing grade. In many instances these students have missed previously administered tests, failed to meet deadlines on turn-in assignments, and have a record of absences from class. Polk Community College history courses are so constructed that mastery of subject matter taught in the latter part is heavily dependent upon comprehension of factual material taught earlier in the course. If students are absent during the time essential foundations are laid, it is impossible to compensate for this deficit by assigning extra credit work. Should an instructor attempt to find appropriate assignments to serve the student's purpose, even these assignments are frequently poorly done and/or not completed on time. The most common reason given for failure to achieve acceptable performance is lack of understanding of subject matter taught during absences. Absences, for whatever reason seem to be closely related to the quality of student performance. Many students do not make this association until they are hopelessly behind in their work and face possible failure as the course draws to a close. By then it is too late to take corrective action, and more often than not they fail the course.

REVIEW OF THE LITERATURE

The question of whether or not contact hours with the professor of a course assist in the learning process has received considerable attention in many educational institutions. Formal research into this subject has resulted in diverse conclusions, but some similarities exist. Research bearing upon this question has been conducted at several upper level four year institutions, including Antioch College, the University of Colorado, Miami University (Ohio), Purdue University and the University of Tennessee. No such study seems to be available from the Community College level. For the most part, systematic studies conducted at these four year schools indicate no significant difference between the performance of students who attended regular classes (usually three times a week) and those who studied independently with fewer contact hours or no contact at all except for examinations.

One of the most recently conducted studies (concluded on October 3, 1969) related to this subject was conducted by Professors John B. Knox and Louise E. Dotson in collaboration with Ohmer Milton, Jr. at the University of Tennessee. In their study every effort was made to avoid the mistake of assuming that the student is a <u>standardized</u> student, since such an assumption is contrary to our basic knowledge of individual differences. Among the variables considered in their study was differences in sex, age, family income, religious affiliation and church attendance, race and demographic considerations. The purpose of their study was to examine the relationship

between student performance and selected learner variables, teacher variables, and variations in teaching-learning environments. Particular attention was given to identification of learner variables associated with performance in two different teaching-learning environments - independent study without student-professor contact and the classroom environment involving student-professor contact in which a combination of lecture and discussion was used.

The procedure was to permit each student in introductory sociology to choose whether he would be a regular class attender or whether he would be a non-attender (self-study with attendance only for objective tests). Each of these two categories was subsequently dichotomized into (1) those who had performed as well or better in sociology than their grade point average indicated and (2) those who had performed less well. For the total samples (602 students in the first quarter of the course and 195 in the second quarter) there was no significance in performance between the attenders and non-attenders. The researchers concluded, however, that sometimes individual differences influence the student's need for regular class attendance and,in other cases, his choice not to attend. A study of the performance of attenders and non-attenders on test items classified as factual, conceptual and generalizing provided some evidence that attenders and non=attenders are engaged in different types of learning. To state categorically that there is no significant difference in the performance of attenders and non-attenders is <u>all</u> cases is an over-simplification.

HYPOTHESIS

There is a measurable difference in grades received by students who maintain a record of regular attendance and students who do not. This difference can be measured by the chi-square statistical technique.

BASIC ASSUMPTIONS

1. Classroom instruction is of essential worth in assisting the student to adequately complete a course of study. When instruction is missed due to absences, the mastery of subject matter becomes more difficult.

2. Not all students possess the level of maturity to recognize the value of regular classroom attendance. If attendance is not encouraged by administrative dictate, more absences will occur than if left to the discretion of students.

3. History teachers of classes included in this study utilize diverse techniques to arrive at end of course grades for their students, so there is no attempt to measure knowledge gained in this study.

4. It is assumed that no other variable is operating independently in this study other than attendance rates.

DEFINITION OF TERMS

1. Official Attendance Policy - A policy sanctioned by the sponsoring institution which specifically states the number of absences that will be allowed before continuation in a course is terminated.

2. Excused Absences - Those absences judged by the professor of a course to be valid reasons for missing classes.

3. "Cuts" - Those absences (normally three) from class that the student considers justifiable for his own reasons before consulting the professor about additional absences.

4. Regular Attendance - Attendance at all classes in a course for which a student is officially registered, not to exceed the normally accepted three-cut allowance.

COLLECTION AND TREATMENT OF THE DATA

The attendance and evaluation records of a sample of Polk Community College history professors was obtained and examined for the fall term of the 1972-73 academic year. An effort was made to obtain a wide sampling from the various types of history courses taught; that is, American history, European history, Western Civilization, and state history. Some history professors teach other subjects besides history, and only in one case were all the classes of a single professor comprised of history alone. The following is a distribution of the sampling utilized:

Professor	Classes	Students
A	3	66
B	1	11
C	2	32
D	4	93
E	5	118
TOTAL	15	320

The sampling selected represented a large proportion (fifteen of a total twenty-three) of history sections taught for the term studied. Because of adjustments in class roles the first week of a term, professors do not attempt to establish a permanent class role immediately at the opening of a course. When transfers, deletions, and additions of names on class roles are stabilized a permanent roster is issued by the registrar. Students who did not appear on the permanent roster and therefore did not complete the course were not included in this study.

Information obtained from this study involved the compilation of a distribution table and the construction of pictorial graphy representing the following:

1. The number of students receiving each of the various grades earned for the courses involved, i.e. A,B,C, D, and F with an analysis of each letter grade in terms of absences tolerated. That is, the data shows the number of students who received the letter grade of "A" with no absences, with one, two, three, four, five, six, and over six absences. The same was done for each letter grade until an accounting was made for all grades.

2. A graph was constructed to compare the number of students who exceeded the three-cut allowance and failed with those who exceeded the three-cut allowance and did not fail. The same graph reflects this relationship for passing students.

3. The chi-square statistical technique was employed to test the level of significance between differences in final grades and class attendance.

4. A series of inferential statements based upon the data was made to draw conclusions for the research.

PRESENTATION OF THE DATA

	A	B	C	D	F	Total
Regular less than three cuts	35 47 Chi 4.11	76 87 Chi 1.59	66 53 Chi 2.56	14 15 Chi .07	26 15 Chi 4.65	217
Irregular more than three cuts	17 5 Chi 8.47	36 25 Chi 3.36	32 45 Chi 5.28	6 5 Chi .17	12 23 Chi 10.08	103
Total	52	112	98	20	38	320

The above chart illustrates the calculation of the chi-square for the comparison of grades received by students who maintained a record of regular classroom attendance as opposed to those who did not. The numbers of students and absences in each of the grade categories were counted and placed in tabular form. Column and row subtotals were then calculated. The next step was the calculation of the expected frequencies for each cell in the table. The expected frequencies were calculated by multiplying the column and row subtotals for each cell and dividing by the total number of cases.

For example, to calculate the expected number of students receiving A's in the Regular Attendance category, the column subtotal (52) was multiplied by the line subtotal (217), and this figure was divided by the total number of cases (320) to give the expected frequency of 35 for this cell on the

contingency table. The value for the remaining cells were calculated in the same way.

The actual chi-square values for each of the cells were computed by finding the difference between the obtained and expected frequencies for each cell, squaring this number, and dividing by the expected frequency.

$$x^2 = \sum \frac{(O - E)^2}{E}$$

O - Obtained frequency; E - Expected frequency. Calculation is as follows: 47 - 35 equals 12; 12 squared equals 144; 144 divided by 35 equals 4.11, the chi-square for category "A", Regular Attendance.

These individual chi-squares were totaled to give the chi-square for the comparison between absences and grades awarded.

$$x^2 = \frac{(4.11)^2}{35} \text{ plus } \frac{(1.59)^2}{76} \text{ plus } \frac{(2.56)^2}{66} \text{ plus } \frac{(.07)^2}{14} \text{ plus}$$

$$\frac{(4.65)^2}{15} \text{ plus } \frac{(84.7)^2}{17} \text{ plus } \frac{(3.36)^2}{36} \text{ plus } \frac{(5.28)^2}{32} \text{ plus}$$

$$\frac{(.17)^2}{6} \text{ plus } \frac{(10.08)^2}{12}$$

$x^2 =$ 4.11 plus 1.59 plus 2.56 plus .07 plus 4.65 plus 8.47 plus 3.36 plus 5.28 plus .07 plus 10.08

$x^2 = 40.34$

The next step in the analysis was the computation of the number of degrees of freedom for the contengency table. This was done by computing (p-1) (q-1), where (p) is the

number of column classifications and (q) is the number of line classifications:

df - (p-1) (q-1)

df - (5-1) (2-1)

df - (4) (1)

df - 4

To obtain the chi-square value for a test of the hypothesis at the .05 level or the .001, it is only necessary to enter a table of chi-square values where df equals 4. When this was done it was found that a critical chi-square value of 9.49 was necessary for the acceptance of the hypothesis at the .05 level while a critical value of 18.46 was necessary at the .001 level of confidence. In order to be significant within four degrees of freedom, the computed chi-square must be greater than 9.49 on the .05 level or greater than 18.46 on the .001 level. The computed chi-square level of 40.34 was significant beyond the 18.46 level, so the hypothesis was confirmed and accepted.

ANALYSIS OF THE DATA

An analysis of the contengency table shows that there are more failures (23/61%) in the Irregular Attendance category than in the Regular Attendance category (15/39%). The higher chi-square values in the Irregular Attendance category reflect this. There is a significant difference in the grades received by students who maintain a record of regular attendance and those who do not, at the .001 level. A number of descriptive observations can be drawn from the FINAI COURSE GRADES AS REIATED TO CLASS ATTENDANCE chart as follows:

1. Professors tend to grade high. There were more A's (47) and B's (87) awarded than C's (53), D's (15), and F's (15) all together. One A was awarded to a student absent over six times, a period of time representing more than two weeks of instruction.

2. The chance of making an A is four times better if a student misses only two classes than if he misses six.

3. Only five A's were earned by those who exceeded the three cut allowance as opposed to forty-seven who did not, so the chance of getting an A after three cuts drops rapidly.

4. Of those who failed (38/12%), more exceeded the three cut allowance (23/61%) than those who did not exceed the three cut allowance (15/39%).

5. Of those who failed and did not exceed the three cut allowance (15/39%), as many took the entire three cuts (3/20%), as those who did not take any cuts at all (3/20%).

FINAL COURSE GRADES AS RELATED TO CLASS ATTENDANCE

Grades	A	B	C	D	F	Failures
Absences						
0	25	37	13	6	3	
1	12	19	10	1	1	
2	8	13	12	5	8	
3	2 [47]	18 [87]	18 [53]	3 [15]	3 [15]	= 217
4	2	14	8	0	2	
5	0	3	8	1	6	
6	2	4	14	1	2	
over 6	1 [5]	4 [25]	15 [45]	3 [5]	13 [23]	= 103
TOTALS	52/16%	112/35%	98/31%	20/6%	38/12%	= 320/100%

202/61% (Absences 0, 1, 2)

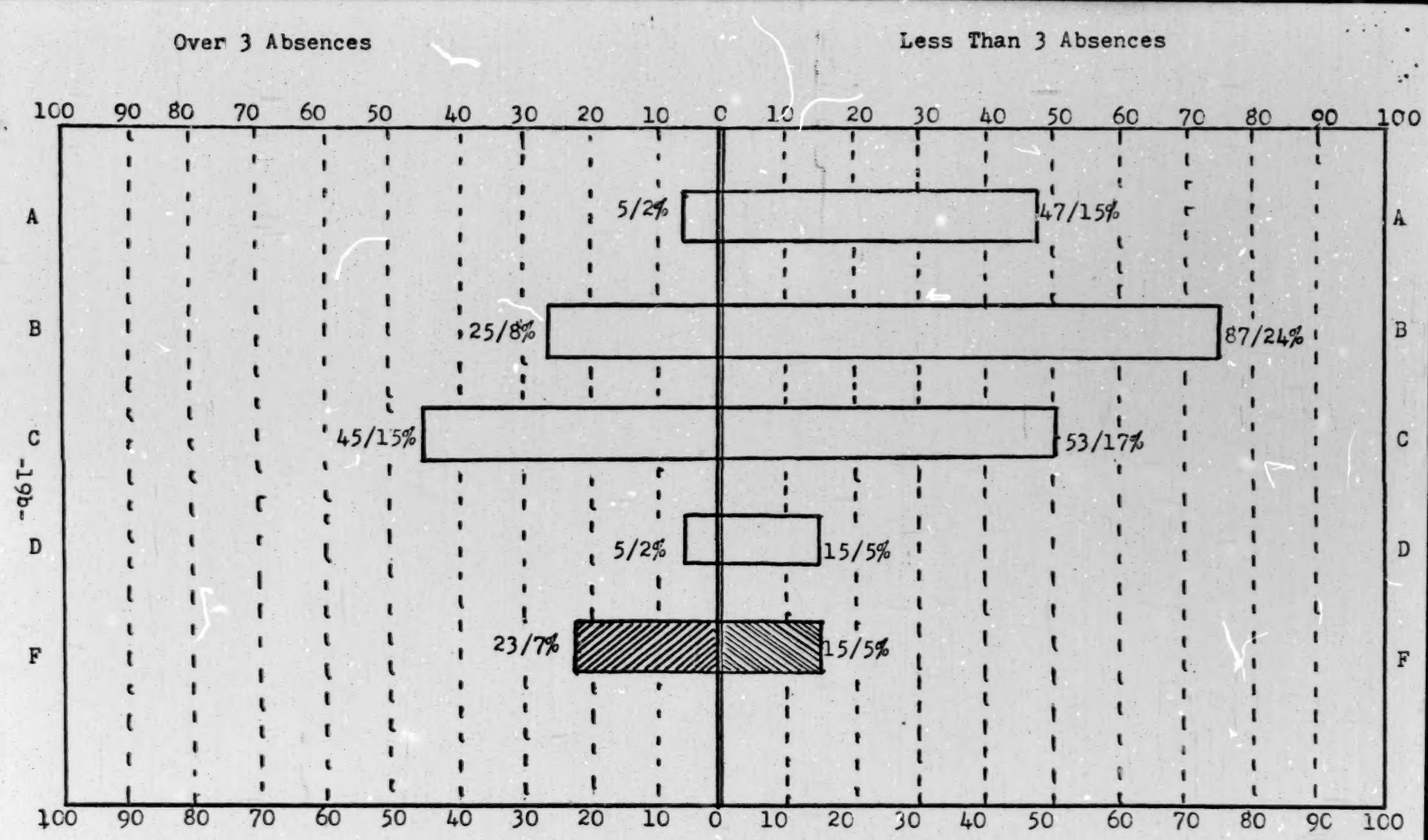
282/88% (Absences 0, 1, 2, 3)

80/25% (Absences 4, 5, 6, over 6)

15/39% (Failures: 0, 1, 2)

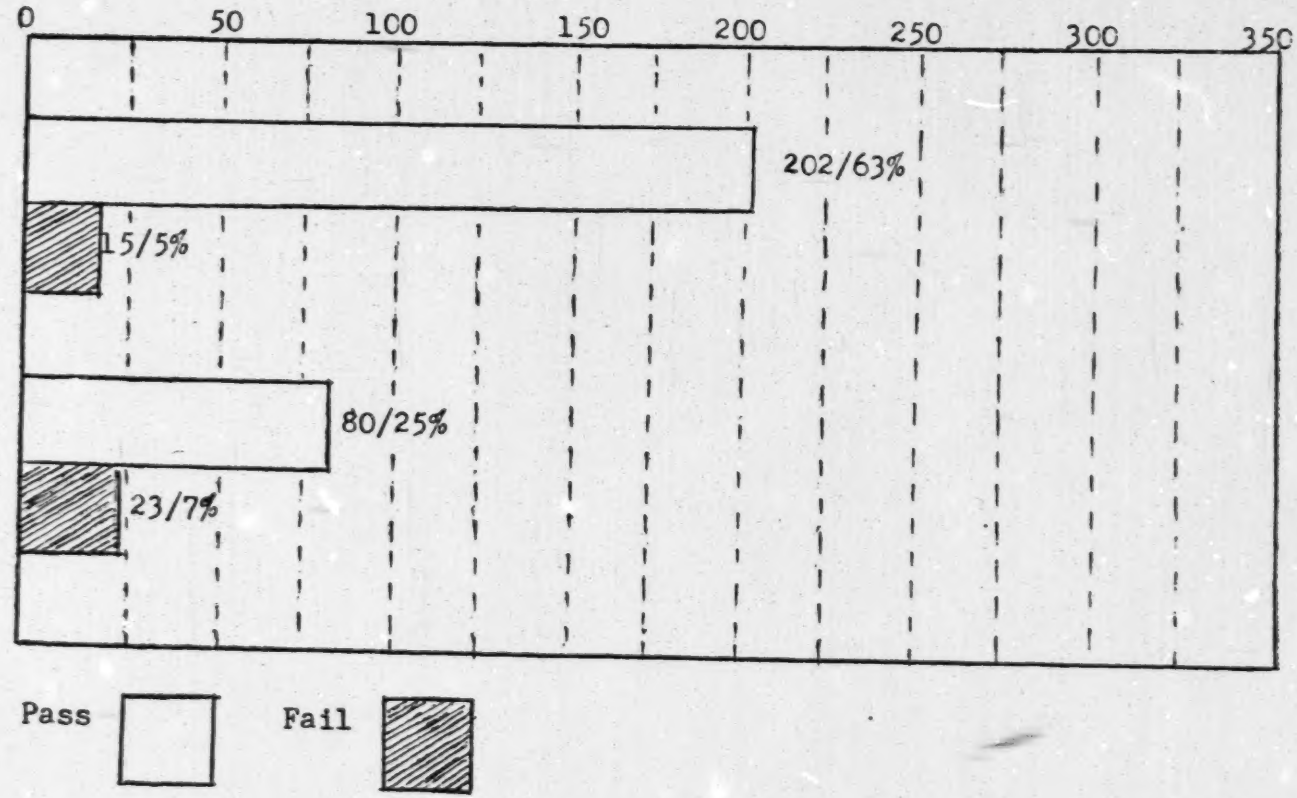
38/12% (Failures: 3, 4, 5, 6, over 6)

23/61% (Failures: 4, 5, 6, over 6)



FINAL COURSE GRADES AS RELATED TO CLASS ATTENDANCE

PASS - FAIL RELATIONSHIP TO ABSENCES



SUMMARY AND CONCLUSIONS

About one-third (103/32%) of the total number of students in this study (320/100%) took liberties beyond the normally accepted three-cut allowance. Of these, one-fifth (23/20%) failed. Since these cuts represent student choice with no implied approval from the administration, the number of failures for those completing the course could be considerably reduced if no choice at all were allowed the student. This is to say that the availability of a choice to use one's own judgement in such matters sets the stage for the use of unsatisfactory judgement. Data compiled in this study further indicates that over all end of course grades would be higher if regular attendance in class (either by administrative dictate or voluntarily) were maintained by all students. It shows that more students would benefit from the institution of a mandatory attendance policy than would be restricted by such a policy. Those who attended regularly were rewarded to a greater degree than those who did not. An official attendance policy designed to strengthen attendance in class would serve only to reward more students than if no such policy existed.

REFERENCES

Bradley, Edward, The University Outside Europe. London: Oxford University Press, 1939, pp. 58-59.

Brubacher, John S. and Willis Rudy, Higher Education in Transition. New York: Harper and Row, 1958, p. 81.

Coleman, James S., Introduction to Mathematical Sociology. New York: Free Press, 1965.

Coleman, James S., and Leon S. Robertson, "Multivariate Analysis," seminar at The John Hopkins University, December, 1955.

Johnston, A. Montgomery,"Teaching the Social Sciences Content," Joe L. Frost and Thomas Rowland (eds.), Boston: Houghton Mifflin, 1969, pp. 454-455.

Siegal, Laurence and Lila C. Segal, "A Multivariate Paradigm for Educational Research," Psychological Bulletin, 68:5, pp. 306-326.

Stevenson, Burton (ed.), The Home Book of Quotations: Classical and Modern. New York:Dodd, Meade, and Co., 1956, p. 2069.

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